## Appendix M



 $\overline{Monomoy\ Lighthouse}$ 

# **Federal Compliance Documents**



#### THE COMMONWEALTH OF MASSACHUSETTS

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS OFFICE OF COASTAL ZONE MANAGEMENT 251 Causeway Street, Suite 800, Boston, MA 02114-2136 (617) 626-1200 FAX: (617) 626-1240

December 22, 2015

Carl Melberg
U.S. Department of the Interior
Fish and Wildlife Service
Eastern Massachusetts National Wildlife Refuge Complex
73 Weir Hill Road
Sudbury, MA 01776-1420

Re: CZM Federal Consistency Review of the 15 year-Comprehensive Conservation Plan for the Monomoy National Wildlife Refuge; Chatham.

Dear Mr. Melberg:

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the proposed 15 year-Comprehensive Conservation Plan for Monomoy National Wildlife Refuge in Chatham.

Based upon our review of applicable information, we concur with your certification and find that the activity as proposed is consistent with CZM enforceable program policies.

If the above-referenced project is modified in any manner, including any changes resulting from permit, license or certification revisions, including those ensuing from an appeal, or the project is noted to be having effects on coastal resources or uses that are different than originally proposed, it is incumbent upon the proponent to notify CZM, submit an explanation of the nature of the change pursuant to 15 CFR 930, and submit any modified state permits, licenses, or certifications. CZM will use this information to determine if further federal consistency review is required.

Thank you for your cooperation with CZM.

Sincerely,

Bruce K. Carlisle

Director

BKC/rlb CZM#15319

cc: Steve McKenna

CZM Cape and Islands Regional Coordinator

## INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Stephanie Koch, Wildlife Biologist, Eastern Massachusetts NWR Complex

Telephone Number: 978-443-4661, x24

Date: August 10, 2015

I. R5

## II. Service Activity (Program): Refuges

We are proposing inventories, monitoring, and management to benefit roseate terns, piping plovers, red knots (*rufa* subspecies; hereafter referred to as red knots), and northeastern beach tiger beetles, as described in the Monomoy NWR Comprehensive Conservation Plan (CCP).

## III. Pertinent Species and Habitat:

## A. Listed species and/or their critical habitat within the action area:

- 1. Roseate Tern (Sterna dougallii dougallii) / No critical habitat designated
- 2. Piping Plover (Charadrius melodus) / No critical habitat designated
- 3. Red Knot (Calidris canutus rufa) / No critical habitat designated
- 4. Northeastern Beach Tiger Beetle / No critical habitat designated
- B. Proposed species and/or proposed critical habitat within the action area:
  None.
- C. Candidate species within the action area: None.

## IV. Geographic area or station name and action:

The proposed actions are inventories, monitoring, and management for roseate terns, piping plovers, red knots, and northeastern beach tiger beetles at Monomoy NWR.

## V. Location (attach map):

- A. County and State: Barnstable County, MA
- B. Section, township, and range (or latitude and longitude): The attached map (Attachment 1) shows the location of Monomoy NWR.
- C. Distance (miles) and direction to nearest town: Monomoy NWR is located in the Town of Chatham.

#### D. Species/habitat occurrence:

A summary of species occurrence on Monomoy NWR is included below. More

details of species occurrence and habitat use can be found in Chapters 2 and 3 of the Monomoy NWR CCP.

#### 1. Roseate Tern:

The first 20th century report of common and roseate terns nesting on Monomoy NWR occurred in 1961 (Nisbet 1980). The tern colony increased rapidly to 2,000 pairs by 1963, and from 1963 to 1984, Monomoy supported one of the largest tern colonies in the Northeast. Several hundred pairs of roseate terns were found nesting on Monomoy NWR during these years. In 1978, tern reproductive success began to decline on the refuge and the numbers of nesting roseate terns began decreasing in the early 1980s, eventually declining to just 1 nesting pair in 1988. down from 400 nesting pairs in 1980 (USFWS 1998a). Following active management and predator control efforts as part of the avian diversity project which began in 1996, nesting roseate terns returned to Monomov NWR. In 1998 and 1999, more than 20 pairs of roseate terns nested on the north end of South Monomoy with good to average productivity, but in 2000 nesting numbers declined dramatically. The decline in numbers observed in 2000 may have been due to predator presence or the loss of traditional nesting areas. It's possible these birds nested on Minimoy Island in 2002, but this site was not surveyed until 2003. From 2003 to 2008, Minimoy Island hosted between 10 and 43 pairs of roseate terns. Erosion of the western side of Minimoy Island in recent years resulted in 'decreasing habitat for roseate terns, until virtually no suitable habitat was available by 2009. Beginning in 2009, refuge staff attempted to attract roseate terns back to the main common tern nesting colony on South Monomoy by placing nesting structures, decoys, and a sound system in suitable habitat. In 2009, no roseate terms nested on the refuge, but they have nested every year again since 2010 (see Table 2.3 in Chapter 2 of the CCP for detailed information about nesting numbers).

The potential for a large breeding roseate tern colony at Monomoy NWR is great. All roseate terns in the Northeast nest in close association with large, productive common tern colonies; one of the largest of these is on the refuge (USFWS 1998a). In general, common terms prefer slightly less dense vegetation, approximately 30 percent vegetation with 70 percent open sand, than do roseate terns. Roseate terns tend to prefer the opposite configuration, with about 70 percent vegetation to 30 percent open (Koch 2013 personal comment). Monomoy NWR has the potential to support a large nesting site again if we can control predation and are able to successfully provide the optimal habitat. Predator management is an important part of the roseate and common tern restoration efforts on South Monomoy. The presence of a single mammalian predator (e.g., coyote, skunk, and raccoon) or avian predator (e.g., great horned owl, blackcrowned night-heron) in a tern colony can decrease productivity or cause the terns to abandon the site entirely. Predation can limit the distribution and abundance of breeding terns and their reproductive success (Kress and Hall 2004, USFWS 2010a). Habitat management to benefit nesting terns includes vegetation management such as prescribed burns to remove grasses and duff, or plantings to

provide the appropriate mix of open sandy areas and vegetative cover.

## 2. Piping Plover:

Early documentation of piping plover on the refuge are scattered, but the species was nesting on the refuge prior to listing, as early as 1953. Griscom and Snyder (1955) reported 15 pairs of piping plovers on Monomoy NWR in 1955. Beginning in 1983, piping plovers were counted and monitored annually on Monomoy NWR. In February 1988, a master plan (USFWS 1988) was completed for Monomoy NWR, which stipulated that all piping plover nesting sites be closed seasonally to the public. Starting that year, these nesting sites were closed to the public from April through August to help protect the birds, their nests, and their habitat on the refuge, and that effort has continued to the present time. In recent years, the refuge has had a low of four nesting pairs of piping plover in 1993, with recorded numbers greatly expanding after the initiation of the avian diversity program in 1996 (although part of this increase may represent increased monitoring efforts). While plovers successfully nest on Monomoy NWR, current numbers (39 pairs in 2012) are generally lower than the potential capacity estimated for Monomov NWR (94 pairs; USFWS 1996b; see map 2.3 of the CCP). Table 2.2 in Chapter 2 of the CCP shows the number of nesting piping plover pairs and productivity tabulated over the last 16 years (1996 to 2012). In recent years, piping plovers have nested throughout the beach shoreline and dune edges especially on South Monomoy and Minimoy. They also occasionally nest on North Monomoy Island.

#### 3. Red Knot:

Red knots undertake one of the longest migrations known, traveling from their furthest wintering ground at the tip of South America to their Arctic breeding grounds and back again each year, an estimated 16,000-mile round trip. Their migration also includes some of the longest non-stop flights in the bird world, an estimated 5,000 miles over a 6-day period (Niles et al. 2010). Protection of breeding, migration, and wintering habitat is critical to this species' recovery (Niles et al. 2008). Southeastern Massachusetts, and Monomoy Refuge in particular, are likely to provide one of the most important sites for adult and juvenile red knots during their southward migration (Koch and Paton 2009, Harrington et al. 2010a, Harrington et al. 2010b). Research has shown that this region supports red knots bound for different winter destinations. North American wintering birds exhibit different migration chronology, flight feather molt, and even foraging habits than South American wintering birds (Harrington et al. 2010b). In recent years, red knots have been using intertidal areas throughout the refuge for foraging, especially Minimoy Island and the north end of South Monomoy Island. They also often roost on the beach edges or saltmarshes on higher tides, especially on South Beach, the Connection Beach on South Monomoy Island, and Minimoy Island. It is not uncommon to observe groups of several hundred red knots at a time at these sites.

#### 4. Northeastern Beach Tiger Beetle:

This tiger beetle occurred historically "in great swarms" on beaches along the Atlantic coast from Cape Cod to central New Jersey, and along Chesapeake Bay beaches in Maryland and Virginia. In 1994, only two small populations remained on the Atlantic coast. Searches on Monomoy NWR in the 1980s failed to locate the northeastern beach tiger beetle, but the structure of the habitat seemed favorable. Federal ownership, the occurrence of historic collection records labeled "Chatham" (the town in which the refuge is located), and the desire of State wildlife officials to retain Massachusetts beetles within the State all combined to make Monomoy the leading candidate as an introduction site (USFWS 1994). The first larval beetle transplant occurred in May 2000, when 23 third instar tiger beetle larvae were moved from Martha's Vineyard to the refuge. Adult beetles generally emerge from their sandy burrows in July and August, and that year, five adult tiger beetles emerged and were found on the refuge. Introduction continued to occur from 2001 through 2003 with 34, 33, and 23 larvae transplanted, respectively. In 2001, approximately 24 adults were found; in 2002, 27 adults were found; and in 2003, 19 adults were found. Table 2.4 in Chapter 2 of the CCP shows the number of northeastern beach tiger beetle larvae translocated and the number of adults captured and marked on the refuge between 2000 and 2012.

Currently, northeastern beach tiger beetles are generally found on the beaches on the eastern side of South Monomoy Island and also on South Beach, spanning several miles. On beaches where they occur, adults are most active on warm, sunny days along the water's edge, where they are commonly seen feeding, mating, or basking (thermoregulation). The number of adult beetles active on rainy or cool, cloudy days is very low, probably because the beetles need to maintain high body temperatures for maximal predatory activity. Adults tend to be concentrated in wider sections of beach, and occur in smaller numbers or may even be absent from nearby areas of narrow beach. Larvae occur in a relatively narrow band of the upper intertidal to high drift zone, but may relocate their burrows throughout their development to adapt to environmental and seasonal changes in the beach ecosystem (USFWS 1994).

#### VI. Description of proposed action (attach additional pages as needed):

Below we identify and describe the <u>inventory/monitoring</u> and <u>management</u> actions on <u>roseate terns</u>, <u>piping plovers</u>, <u>red knots</u>, <u>and northeastern beach tiger beetles</u> that we have proposed in the CCP. All of these actions support our biological objectives. We are not addressing strategies or monitoring elements in the CCP that are not "direct actions", including, but not limited to: conducting outreach and interpretation, closing areas with symbolic fencing, patrolling, assessing habitat, or passive monitoring / observations. However, all our strategies and monitoring elements can found in Chapter 3 of the CCP.

#### 1. Roseate Terns

#### Inventory / Monitor:

Nesting roseate terms are identified and monitored throughout the nesting season

by trained and authorized personnel, with an emphasis on the State census window of June 5-20. To minimize disturbance, nest searching is conducted from blinds located throughout the colony when practical, and while personnel are sitting in blinds, nesting birds are not disturbed. There is some minor disturbance to nesting birds while personnel are entering and exiting blinds, but approach routes are kept constant (to allow for habituation), and the colony is not disturbed during inclement weather (such as heavy winds, dense fog, extreme temperatures, rain). Any confirmed roseate tern nests are monitored throughout the nesting season to determine reproductive parameters and measure reproductive success. Nests are checked in conjunction with other colony monitoring work to minimize additional disturbance. Additionally, there is some disturbance to roseate terns while common tern monitoring is conducted, but staff move quickly and keep a low profile while working in the colony, such that the disturbed area is generally confined to a 25 meter radius area, and disturbance impacts are insignificant.

Trained and authorized personnel (covered as a BBL permittee) trap banded adult roseate terns, and band any unbanded adults that are captured, as well as all chicks. This contributes to better fledge success estimates, helps document nesting site fidelity, and contributes to metapopulation studies. Only bands that have been vetted and widely approved by the Roseate Tern Recovery Team are used, and nests are monitored following banding efforts to confirm that adults resume normal incubation / chick rearing activities, and that the short disturbances and handling times are insignificant.

## Management:

- Several structures and infrastructure are used at Monomoy NWR to enhance inventory and monitoring efforts, as well as improve the habitat for nesting roseate terns. For example, Refuge staff establish and staff a temporary field camp from early May until early August to maintain a human presence 24 hours per day for the purpose of providing predator management and facilitating data collection. The camp is established on the periphery of the tern colony (though nesting common terns often "move in" to the camp area once it is established) and is established prior to tern nesting. Staff also erect temporary, hard-sided blinds within the tern nesting areas to facilitate the identification of possible limiting factors to reproductive success, including diet composition and impacts of kleptoparasitism, and to further facilitate nesting studies and predator management. Lastly, staff place temporary wooden nesting structures, wooden chick shelters, decoys, and sound systems to attract nesting roseate terns during the start of the nesting season. Because the structures and infrastructure are either placed prior to tern nesting, or are "fixed" through the season, the terns quickly habituate to their presence and they do not cause any disturbance or impact. In fact, the increased efficiency in predator control, and improved habitat conditions, are likely to benefit roseate terns.
- Competitor and predator management is conducted throughout the Refuge to minimize impacts to roseate terns. Throughout the 125-acre gull management area, non-lethal harassment of great black-backed and herring gulls is conducted to prevent gull nesting. Staff also destroy all nests by scattering nesting materials

- and removing eggs. Lethal control is also conducted throughout the nesting season, with an emphasis on all mammalian predators (such as coyotes), as well as selective control of avian predators (such as black-crowned night-herons) and competitor species (laughing gulls). Appendix J of the Monomoy NWR CCP includes detailed descriptions of predator control approaches that are incorporated at Monomoy NWR. When predator control is deemed necessary in areas and during times when roseate terms are also present, every precaution is taken to avoid disturbance. All staff are trained prior to entering nesting areas. Predator control occurring within the nesting colony, is primarily conducted from wooden blinds at a distance from nesting roseate terms to minimize disturbance so that effects are insignificant.
- Vegetation management is conducted in selected areas using mechanical methods, herbicide, and rotational prescribed burning during the time of year when roseate terns are not present; therefore avoiding adverse effects. Vegetation management is implemented to improve habitat for terns and discourage nesting by competitor species, including laughing gulls. Vegetation management may also include planting native species, such as goldenrod, to further enhance and benefit roseate tern nesting habitat. A separate Section 7 is also conducted in conjunction with each Burn Plan that is developed for Monomoy NWR.

## 2. Piping Plovers

## Inventory / Monitor:

• Nesting piping plovers are identified and monitored throughout the nesting season by trained and authorized personnel, beginning in mid-March. Much of the nest searching is conducted from within nesting habitat, but all staff are carefully trained prior to entering nesting areas. There is some minor disturbance to nesting birds while personnel are confirming nest locations but nest searching is not conducted during inclement weather (such as heavy winds, dense fog, extreme temperatures, rain). Any confirmed piping plovers nests are monitored throughout the nesting season to determine reproductive parameters and measure reproductive success. Nests are often checked from a distance to confirm incubation, and when nests are approached to confirm clutch size or hatching, it is done very quickly, generally resulting in less than 2 minutes of disturbance, which is deemed insignificant. Additionally, staff use high powered spotting scopes to monitor and confirm chick survival from a distance which further minimizes disturbance.

#### Management:

• Predator management is conducted throughout the Refuge to minimize impacts to piping plovers (see bullet below about predator exclosures). Lethal control is also conducted throughout the nesting season, with an emphasis on all mammalian predators (such as coyotes), as well as selective control of avian predators (such as grackles). Appendix J of the Monomoy NWR CCP includes detailed descriptions of predator control approaches that are incorporated at Monomoy NWR. When predator control is deemed necessary in areas and during times

- when piping plovers are also present, every precaution is taken to avoid disturbance. For example, predator control would not take place in piping plover nesting areas during inclement weather.
- Authorized and trained personnel install temporary predator exclosures on piping plover nests that are located in sparsely vegetated areas with nothing obstructing the view of the bird or inhibiting the bird's ability to detect predators. Piping plovers may be disturbed for up to 15 minutes during installation of an exclosure (plus an additional few minutes for the bird to resume incubation), but staff take all precautions to minimize disturbance including: having at least 4 trained persons doing the installation; avoiding inclement weather; insuring the nest is actively being incubated prior to installation, and; confirming the pair resumes incubation immediately after installation.

#### 3. Red Knot

## Inventory / Monitor:

• Authorized and highly trained personnel will continue to monitor red knots and learn more about habitat use at various scales (local and flyway-wide). In recent years, cannon nets have been used to capture red knots so they can be outfitted with geolocators (for flyway-wide information) and nanotags (for more refined location information). This work may be conducted on an annual basis, only after obtaining the appropriate recovery permits and conducting a separate section 7 consultation. Various measures are put in place to ensure that impacts to red knots are minimized including strict adherence to guidelines regarding cannon netting operation safety, ensuring enough trained staff are available to handle and process birds, and keeping birds in cool, dark holding spaces, and monitoring behavior until they are processed and released.

#### 4. Northeastern Beach Tiger Beetles

#### Inventory / Monitor:

Trained and authorized staff may conduct adult beetle spawning surveys from late
June to late August period. During these visits, beetles are observed at close
distances, but for a very short period of time (with insignificant disturbance).
Occasionally, staff may perform low intensity mark and resight efforts to estimate
the population and calculate survival probability. When these activities occur,
handling time is short, and there is no significant effect.

#### Management:

- Maintain vehicle closures on refuge lands to protect habitat and allow for continued population growth; cooperate with the Town of Chatham, State of Massachusetts, U.S. Coast Guard, and other partners involved in emergency and public safety operations to protect tiger beetles and habitat when vehicle access is deemed essential to protect human life. This includes increased monitoring when vehicles are present to minimize habitat degradation and mortality by OSVs.
- Facilitate and expand research opportunities on the refuge to fill data gaps that

will promote tiger beetle recovery including, but not limited to, genetic work to determine differences between beetle populations in Massachusetts and Chesapeake Bay. Work with the New England Ecological Services Field Office to utilize Monomoy refuge as a donor population for newly identified sites (after obtaining the appropriate recovery permits and conducting a separate section 7 consultation), while ensuring that the Monomoy population is not adversely impacted.

#### VII. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III.A,
 B, and C (attach additional pages as needed):

The proposed actions will take place from March 15 – November 15, which encompasses the piping plover and roseate tern nesting season, the northeastern beach tiger beetle breeding season, and the red knot staging and migration periods. The proposed actions will be conducted by authorized and experienced Refuge biological staff, experienced partners, or trained interns that are familiar with our protocols and species ecology. We expect our proposed actions to be either "not likely to adversely affect", or "may affect / beneficial effects", depending on the species and action (See VIIIA below).

B. Explanation of actions to be implemented to reduce adverse effects:

In all situations, we make every effort to minimize effects and maximize beneficial effects. Avoidance measures include restricting actions to the time of year when listed species are not present, or avoiding inclement weather when species are present, implementing actions at a distance from nesting roseate terms and piping plovers to reduce disturbance to the level that effects will not reach the scale where take occurs (insignificant effects) or where take is unlikely to occur (discountable effects) and avoiding impacts to larval northeastern beach tiger beetle habitat during the implementation of management actions. See preceding management discussion for details.

is likely to adversely affect (species:)	Formal consultation
may affect; beneficial effect (species: roseate terns, piping plovers, northeastern beach tiger beetle species])	es [management of all Concurrence
Project Leader, Eastern Massachusetts NWR Complex	9/10/2015 Date
IX. Reviewing ESO Evaluation: Susi con Oettingen  A. Concurrence Non-concurrence  B. Formal consultation required  C. Conference required  D. Remarks (attach additional pages as needed):	reviewed and conc
Signature Aching In Tan Chapmen	8/11 /15 Date



## The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

May 18, 2015

Carl Melberg Natural Resource Planner US Fish & Wildlife Service Eastern Mass. NWR Complex 73 Weir Hill Road Sudbury MA 01776-1420

RE: Monomoy National Wildlife Refuge, Great Point, Chatham, MA. MHC #RC.16744.

Dear Mr. Melberg:

Thank you for providing the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer, with a copy of the Monomoy National Wildlife Refuge Draft Comprehensive Conservation Plan and Draft Environmental Impact Statement (DCCP/DEIS).

Review of the Inventory of Historic and Archaeological Assets of the Commonwealth indicates that there are several recorded historical and archaeological individual properties within the refuge, including the Old Monomoy Lighthouse complex (MHC # CHA.LS), listed in the State and National Registers of Historic Places. Several ancient Native American archaeological sites are recorded in the MHC's Inventory for Morris Island, within and adjacent to refuge property. The MHC recommends that USFW incorporate historic and archaeological information from other sources and repositories during its current and future planning and survey efforts for cultural resources. Inventories and files maintained by others within information on historical and archaeological resources within and adjacent to the refuge could include the MHC, Massachusetts Board of Underwater Archaeological Resources, the National Park Service, Cape Cod National Seashore, the Cape Cod Museum of Natural History and the Massachusetts Archaeological Society.

The MHC notes that one proposed project alternative includes comprehensive archaeological survey of the refuge. The MHC is able to review and comment on the proposed research design and methodology for the survey as the survey project proceeds. The dynamic sand dune topography of the refuge would periodically expose then bury any archaeological deposits and features that may be present.

Ancient and historical period Native American sites would be most likely located in close proximity to areas that once had fresh water springs or ponds, and navigational features within former marine landscapes among the waterways of Morris Island and North and South Monomoy Islands. Occupation and resource gathering activities by Native Americans such as marine fishing, harvesting beached marine mammals, hunting, and plant gathering may have occurred in the refuge in ancient and historical times, including Paleo-Indian occupations during the early Holocene period. Archaeological resources associated with historical period activities are also expected within the refuge, including wrecking, boatbuilding, marine resource harvesting (e.g. fishing, shellfishing and whaling), and waterfowl hunting.

220 Morrissey Boulevard, Boston, Massachusetts 02125 (617) 727-8470 • Fax: (617) 727-5128 www.sec.state.ma.us/mhc The 18th through early 20th century maritime community of Whitewash Village on the former Powder Hole anchorage on South Monomoy is noted as a focus of future research under several of the proposed management alternatives, and the MHC would appreciate receiving information on this interesting historical maritime community.

An important aspect of ongoing cultural resource management within the refuge in support of Refuge Goal #5 (e.g. pg. 3-68) is the coordination of public outreach and refuge interpretative programs with staff cultural resource management efforts. Methods for the identification, documentation and protection of archaeological resources within the refuge by pedestrian visitors may include the development and implementation of identification forms and educational materials, modeled on the Massachusetts Board of Underwater Archaeological Resources SHIPS Initiative, for newly identified archaeological resources. Publication of cultural resources management information to local charter boat operators, and at local and regional marinas, boat launches and water access points, would facilitate communication of cultural resources management practices to the substantial numbers of water-borne refuge visitors.

The MHC agrees that the typical activities involved in the management and interpretation of the refuge are undertakings that have "no potential to cause effects" (36 CFR 800.3(a)(1)) to historical and archaeological properties. If the US Fish & Wildlife Service proposes any projects that involve new construction, demolition, or other activities that impact the ground surface or subsurface, please provide information to the MHC for review and comment in compliance with 36 CFR 800, as outlined in the DCCP/DEIS. The MHC would also appreciate the opportunity to review and comment on draft planning documents, including cultural resource management plans and historic properties management plans, including a plan for the Old Monomoy Lighthouse complex.

Thank you again for the opportunity to provide comments. Please contact me if you have any questions.

Sincerely,

Jonathan K. Patton

Staff Archaeologist/ Preservation Planner Massachusetts Historical Commission

xc:

Tim Binzen, USFW Victor Mastone, MBUAR